Hanford Reach
Hanford Site Employee News
May 19, 2003

The team that is building Hanford's Waste Treatment Plant Project Pretreatment facility has installed the project's first vessel that is regulated under the project's Dangerous Waste Permit. Construction crews safely hoisted the vessel with a crawler crane and gently lowered the stainless-steel vessel onto supports in the base of a reinforced-concrete pit in the building's basemat.

DOE approves construction plan for WTP

Pace maintained on WTP construction

The Bechtel National-led Waste Treatment Plant Project's engineering, procurement and permitting teams continue preparing design packages and materials for the field, even as skilled construction craft workers turn those accomplishments into visual progress in Hanford's 200 East Area.

The WTP Project engineering and construction crews have come together to complete more than 967,000 cubic yards of earthwork and place more than 42,700 cubic yards of concrete. Those concrete structures include more than 12,340 tons of reinforcing steel and more than 346 tons of embeds. Workers have also installed some 77,600 feet of electrical raceway, more than 76,200 feet of piping and about 36 tons of heating, ventilation and air-conditioning ductwork.

U.S. Deputy Secretary of Energy Kyle McSlarrow announced on May 8 that DOE has authorized both a new construction plan for the Waste Treatment Plant at the Hanford Site, and the go-ahead for the department's Office of River Protection to proceed with its construction, subject to congressional notification.

The construction of the redesigned and improved facility will play a major role in the cleanup of tank waste 18 years earlier than originally scheduled.

"This action keeps Secretary Abraham's commitment to accelerate cleanup at Hanford," said McSlarrow. "The site takes another step forward with the full construction of the Waste Treatment Plant. Under our accelerated cleanup project, Hanford cleanup will occur more than 30 years ahead of schedule, and this plant will play an integral role in that effort."

Accelerating the cleanup of Hanford was set in motion with an agreement reached between DOE and Washington Governor Gary Locke. Washington was the first state to sign an accelerated cleanup agreement with DOE.

In July 2002, DOE approved limited construction of the WTP, which allowed ORP's construction contractor, Bechtel National, to meet a Tri- Party Agreement milestone and begin building the foundations and below-ground structures for the three large facilities that make up the WTP complex.

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DOE approves construction plan for WTP, cont.

After the plant is completed and commissioned in 2011, it will separate and process both high-level and low-activity radioactive tank waste. The plant will vitrify the entire high-level fraction by 2028. A combination of WTP vitrification and sup-plemental technologies is planned for treatment of the low-activity wastes, allowing completion of the mission by 2028.

"This is a significant step forward for tank waste cleanup at Hanford," said Roy Schepens, ORP manager. "We've received approval to construct a resized and reconfigured treatment plant that will support tank waste cleanup 18 years earlier than we originally projected."

The original plan for the WTP called for a two-phased approach with an initial plant employing one high-level waste melter and three low-activity waste melters. In phase two, starting in 2018, a second high-level waste melter would be installed and a new facility to house three additional low-activity waste melters would be constructed. The phase-two facility would complete the vitrification of Hanford's 53 million gallons of tank waste by 2046.

The updated plan employs a multifaceted waste-treatment approach using a single WTP with two high-capacity, high-level waste melters, two higher-capacity low-activity waste melters, and supplemental treatment technologies to treat the remaining low-activity tank waste. In addition to the substantial increase in melter capability, plant improvements include an enhanced on-site analytical laboratory and the addition of a training simulator.

"We're moving forward with a solution that matches treatment to the character of the waste, and allows us to finish the job with a single, highly capable WTP," said Schepens. "Installing the second high-capacity, high-level waste melter provides the fastest, surest way to treat the tank waste by the 2028 Tri-Party Agreement date. The original phased approach simply took too long to get the job done."

As design and construction of the more-capable WTP continues, DOE is evaluating bulk vitrification, steam reforming and containerized grout for supplemental treatment of most of the low-activity tank waste. Each of the supplemental technologies has been successfully used in other applications but has not yet been tested with Hanford tank waste.

"Nearly 90 percent of the inventory in Hanford's tanks is low-activity waste containing hazardous chemicals and water, with low levels of radioactivity," said Schepens. "Some of the low-activity waste is well suited for vitrification and it will go through the treatment plant. We're evaluating the supplemental technologies, and we should know in about 18 months if we can use one or several to treat the low-activity waste that isn't so well suited for the WTP."

The authorization for full construction included a revised cost for the WTP, and adds management controls to the BNI contract. "An external independent review team has reviewed and validated the WTP cost and schedule," said Schepens. "To safeguard against additional cost growth and potential schedule impacts, ORP has placed additional management controls in the Bechtel contract prior to moving to full construction of the WTP."

A report to Congress regarding the revised WTP cost is being prepared.

To date, BNI has excavated more than 900,000 cubic yards of soil, placed 34,000 cubic yards of concrete and 10,000 tons of rebar, and installed nearly 26 miles of piping and conduit as construction of the WTP continues. The first installment of structural steel above grade is expected to occur in August, two months ahead of the Tri-Party Agreement milestone.

"This will be an exciting year for construction of the WTP," said Schepens. "With the approval for full construction, we'll start to see these facilities come out of the ground at Hanford." ■